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https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-ws&comm_period=1

COMMENTS ON CALIFORNIA AIR RESOURCES BOARD'S CAP-AND-TRADE REGULATION AMENDMENTS WORKSHOP

Compliance Offset Methodology
Short-Lived Climate Pollutant Strategy
Replacement of Foam Blowing Agent from High-GWP Materials to Low-GWP Materials in Manufacturing and Use
November 4, 2016

This memo is submitted to the Air Resources Board ("**ARB**") with respect to adopting further regulations and requirements to add an additional Protocol under the AB32 regulations for creating Air Resources Board Offset Credits ("**ARBOCs**"). The comments in this memo focus on recent ARB legislation and highlights the important environmental and cost containment benefits associated with the adoption of a recently approved American Carbon Registry ("**ACR**") Methodology.

Introduction

In April 2016, the *"Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Manufacturing and Use"* ("**Methodology**") was published by ACR. Since the adoption of this Methodology there has been significant interest from both large and small foam manufacturers across the U.S. to implement projects associated with this Methodology. More importantly, several projects are currently undergoing the validation and verification process to produce voluntary offsets through ACR.

This Methodology creates offsets primarily through the transition away from hydrochlorofluorocarbons ("**HFCs**") in foam manufacturing and use. HFCs have a high global warming potential ("**GWP**") and are the principal blowing agent ("**BA**") for most polyurethane foams ("**PUF**")[1] manufactured in the United States. A BA is used to propel liquid plastic resin to produce the foam that is used in PUFs. Foam BAs are used in the manufacturing of items like refrigerators, buildings, automobiles, furniture, packaging, etc.

[1] *Defined in the methodology as "foam created through the mix of polyurethane chemical and a BA".*

This Methodology was adopted by the ACR in April, 2016 after completion of the ACR methodology review, peer review and approval process.

This Methodology is similar to the CDM methodology AMS-III.N2 and rests on the reporting formulae established by IPCC for HFC emissions. It is the result of innovations to develop near-zero-GWP BAs and approvals of such by the U.S. EPA under its Significant New Alternatives Policy ("**SNAP**") Program. The Methodology includes not only a credit for early action to use low-GWP BAs, but also yields credits for BAs which go beyond the forthcoming Montreal Protocol Amendments and U.S.EPA SNAP requirements[3]. This Methodology has been supported by industry participants and non-profit organizations such as the International Emissions Trading Association ("**IETA**"). The methodology has also been included in the climate regulations issued by the State of Washington as an eligible offset methodology.[4]

The methodology is consistent with and supportive of the ARB Short Lived Climate Pollutant Policy ("**SLCP**") and would substantially advance implementation of California's Climate Protection legislation and objectives.

Foam Supplies urges the inclusion of this Methodology in the cap-and-trade program as it provides an alternative to high-GWP materials in foam BA and offers opportunities to switch seamlessly from high-GWP to near-zero or low-GWP BAs. This Methodology identifies four applications for blowing agents for PUFs[5] which meet the low-market penetration Performance Standard test: Residential Appliances; XPS Board and Billet Manufacturing; Two-Component Rigid PU Spray Foam, and four end uses which use the Injected Rigid PUF manufacturing method. Several projects are underway using the Methodology.

A compliance offset mechanism for foam BAs is a valuable tool to support ARB efforts to reach the crucial but yet ambitious State overall target greenhouse gases ("**GHG**") target of 40 percent below 1990 by 2030[6] ("**SB 32**"). Pursuing its leadership on environmental policies, the California legislator codified ARB's emissions target for short-lived climate pollutants ("**SB 1383 or the Super Pollutant Legislation**"), and ordered its enforcement by January 2018[7]. Specifically, the law directs ARB to implement a "comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction [...] in hydrofluorocarbon gases by 40 percent [...] below 2013 levels by 2030"[8]. According to

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[2] *Available at https://cdm.unfccc.int/methodologies/DB/1P2JT8SH9N4BE14JIL3641BQOB0FCR*

[3] *Reductions of 15% emissions compared to 2012 level by 2030.* https://www.whitehouse.gov/the-press-office/2016/09/22/leaders-100-countries-call-ambitious-amendment-montreal-protocol-phase

[4] *http://www.ecy.wa.gov/programs/air/rules/docs/UnofficialRuleLanguageChapter173442WAC.pdf, p.27; WAC 173-442-168 8(d).*

[5] *Defined in the methodology as "foam created through the mix of polyurethane chemical and a BA".*

[6] *SB 32 (September 8, 2016), Cal. H&S Code, §38566, relating to greenhouse gases. Available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32*

[7] *Cal. H&S Code §39730.5*

[8] *SB 1383 (September 19, 2016) Cal. H&S Code, at §39730.5, 39730.6, 39730.7 and 39730.8; and adding Chap. 13.1 to Part 3 of Division 30 of the Public Resources Code, relating to methane emissions. Available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB1383*

the Proposed Short-Lived Climate Pollutant Reduction Strategy ("**SLCP Reduction Strategy**"), reaching this target represent a reduction of 24 million metrics tons of CO2e- compared to 2013 levels[9].

Therefore, the Methodology should be included in the cap-and-trade program because it advances California's strategy to reduce the greenhouse gases emissions, by providing a cost effective solution to eradicate seamlessly HFCs in PUF, while contributing to early health, environmental and economic benefits in designated disadvantaged communities[10].

1. *The Methodology foster state's efforts to reach SLCP ambitious target*

For the reasons discussed below, ARB should consider the adoption of this Methodology as it is an innovative market-based approach to reduce HFCs in the foam manufacturing industry and is also aligned with the Super Pollutants Legislation and proposed SLCP Reduction Strategy.

- It would be an important tool to ***reach higher targets*** than those stipulated in the Amendment of the Montreal Protocol[11] by allowing the pursuit of a 40% reduction pathway, compared to 2013 pathway.

- In the SLCP Reduction Strategy, ARB recognized that "Even with a strong international agreement to phase down the use of HFCs, additional opportunities remain to reduce their emissions in California in the near-term and through 2030 at a low cost"[12]. Indeed, a compliance offset mechanism for foam BAs is a practical solution which incentivizes foam manufacturers to go beyond the use of ***any HFCs***, even those which the EPA would continue to allow to be used indefinitely.

- The adoption and use of this Methodology could ***potentially generate millions of offset credits annually*** and encourage the ***voluntary replacement*** of high-GWP BAs with low or near-zero GWP BAs.

- HFC emission sources in California are expected to grow by more than 60 percent through 2030, with 17 percent of that growth attributed to the foam industry[13]. Even with the implementation of the recent international Montreal Protocol Amendment and a national phase down, additional action must be pursued to dramatically reduce these emissions.

- This Methodology can produce very substantial emission reductions, as shown in the Table 1 below.

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[9] ARB, Proposed SLCP Reduction Strategy, April 11, 2016 at page 10, 86

[10] Upon bill 535 (De Leon), CalEPA designated disadvantaged communities, for the purpose of allocating 25% of cap-and-trade proceeds to projects in priority these areas.

[11] https://www.whitehouse.gov/the-press-office/2016/09/22/leaders-100-countries-call-ambitious-amendment-montreal-protocol-phase

[12] ARB, Proposed SLCP Reduction Strategy, April 11, 2016 at page 85

[13] ARB, Proposed SLCP Reduction Strategy, April 11, 2016 at page 84,85

Table 1 – *Market Size of Applications Considered*

Market Size of Applications Considered

Work Paper: Potential Offset Credits[1]				
Foam Application	**Sales in 2014 (N.A.) (metric tonnes)**	**Emission Factor**	**Baseline B.A.**	**Annual ARBOCs from Conversion using 100 year GWP**
Rigid PUF injected	7282.7	17%	134a	1,108,791[2]
Rigid PUF residential appliances	15,039	8.25%	245fa assumed	986,934
XPS block/boardstock	2334	31.75%	134a assumed	3,000,000 (est)
PU Spray		28.5%	245fa	See Footnote[3]

1. Do not quote or cite. Discussion document.
2. Based on all sub-applications in Rigid PUF injected; currently eligible sub-applications yield a somewhat lesser potential amount.
3. Caleb report suggests almost 1 million tonnes.

2. *The Methodology provides early benefits in disadvantages communities areas*

Since AB 32 enactment, the CARB is bound to embed, in its emission rules and regulations, ***environmental justice recommendations*** elaborated by the Environmental Justice Advisory Board ("**EJAC**")[14]. The preoccupation of the legislature is that regulations pursuing California's emissions target are protective of the state's disadvantaged communities exposed to poor air quality. The adoption by the current legislature of SB 32 and its companion bill AB 197, as well as SB 1383, takes one step further California's commitment to include environmental justice in the regulatory process. Those laws contain specific language requiring additional measures and efforts to ***mitigate low-income Californians' vulnerability to climate change***[15]. Thus, California has now a comprehensive legal framework on climate justice.

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[14] *Cal. H&S Code §38591(a)*

[15] *Cal. H&S Code, §38566, "Continuing to reduce greenhouse gas emissions is critical for the protection of all areas of the state, but especially for the state's most disadvantaged communities, as those communities are affected first, and, most frequently, by the adverse impacts of climate change, including an increased frequency of extreme weather events, such as drought, heat, and flooding. The state's most disadvantaged communities also are disproportionately impacted by the deleterious effects of climate change on public health."*
Cal. H&S Code, §39730 "To the extent possible, efforts to reduce emissions of short-lived climate pollutants should focus on areas of the state that are disproportionately affected by poor air quality".

For the reason discussed below, innovative market-based mechanisms such as the Methodology have necessarily an important role to play in the achievement of California's climate laws and regulations.

- The adoption of the Methodology would provide means to ***restore balance*** between California's citizens in accordance with the recent legislative developments on environmental justice.

- To eliminate GHG emissions while implementing measures favorable to disadvantages communities requires ***early action with a long-term plan advancing clean technologies*** as suggested by the latest EJAC's recommendations[16].

- The Methodology offers an innovative approach relying on ***state of the art and environmentally friendly materials*** that would facilitate the switch to low-GWP emissions foam BAs. In fact, near-zero GWP foam BAs developed in the Methodology are clean technologies approved by the U.S. EPA under its SNAP Program.

- The adoption of this ARBOCs would facilitate the deployment of low-GWP emissions foam BAs for insulation in the construction of ***new*** "***green buildings***" and ***retrofitted buildings*** within disadvantaged communities[17].

- The Methodology provides a ***comprehensive approach*** fulfilling EJAC's recommendations, which reduce emission of foam BAs throughout the life of the material from manufacturing to end-of-life[18].

- The importance of an ***integrative and collaborative approach*** is encouraged to tackle climate change. On this, EJAC's recommendations suggest to "tap on the expertise and relationships of the EJAC members and their networks to ensure broad public awareness"[19]. Thus it seems logical to include foam manufacturers located in disadvantaged areas and incentivize them to switch to clean foam BAs.

- The Methodology gives ***economic incentive to foam manufacturers***, a large portion of which are small businesses, for switching early to low-GWP foam BA. In accordance with the SLCP Reduction Strategy, the implementation of the Methodology will relieve manufacturers from high up-front costs of new materials[20].

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[16] *Initial Recommendations for Discussion Draft Version of 2030 Target Scoping Plan Update August 26, 2016, at p20. "Emphasize regulations that force the advancement of clean technologies. Ensure that near-term technologies do not adversely impact communities and long-term investments moves towards zero emissions". Accessible at https://www.arb.ca.gov/cc/ejac/ejac_recommendations082616revised.pdf*

[17] *EJAC's recommendations at p7 "Provide direction to industry on best practices for rapidly moving toward widespread design and construction of green buildings within disadvantaged and low-income communities, and incentivize developers to adopt the standards and implement them".*

[18] *EJAC's recommendations at p1. "both short and long-term activities need to result in positive, immediate and measurable impact in these communities".*

[19] *EJAC's recommendations at p1.*

[20] *ARB, Proposed SLCP Reduction Strategy, April 11, 2016 at page 85*

- Foam manufacturers will be more inclined to ***voluntarily transition away*** from the materials if they can benefit from that change. This is aligned with EJAC' recommendations which encourage to "Incentivize behaviors that protect and improve disadvantaged communities; both on a large scale and at a community level"[21].

- The proposed ARBOC would provide ***emissions reduction*** as detailed in Table 1. Those reductions of potent gases will improve the air quality in disadvantaged communities, and consequently reducing environmental and health damages.

- The adoption of this Methodology as an offset mechanism for foam BAs will have a ***direct and localized positive outcome*** on areas disproportionately affected by poor air quality.

Geographically, much of the pollution burden areas are the Central Valley and Southern California. Emissions from foam BAs manufacturing and use are no exception. ARB should therefore ***prioritize action within communities where foam BAs manufactories are located*** through the adoption of the Methodology[22].

The Figure 1 indicates in the Los Angeles area the top 10% ZIP codes with the highest score in terms of pollution[23].

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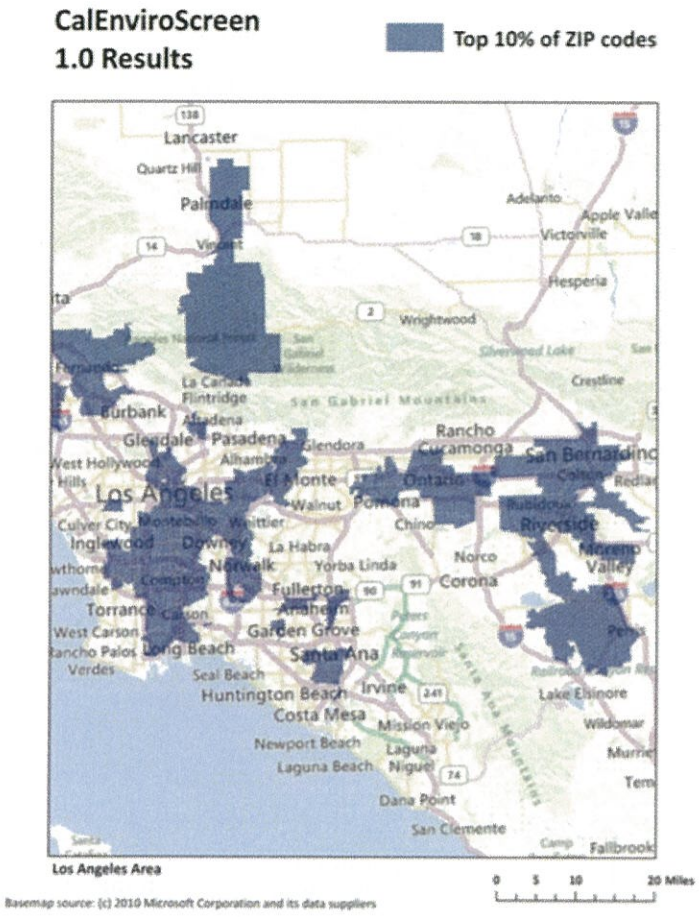
[21] *EJAC's recommendations at p.2*

[22] *EJAC's recommendations at p. 3 "ARB must prioritize actions and investments in California EJ communities before looking at other Californian communities or outside of California".*

[23] *CalEnviroScreen 1.0 tool*

Figure 1 *- Top 10% Highest Scoring Census ZIP Codes, Los Angeles Area*[24]



Through the California Communities Environmental Health Screening ("**CalEnviroScreen**")[25] we can identify the level of pollution in areas where a foam BAs manufactory is located. The Figure 2 depicts the pollution levels in areas where there are foam BAs manufactories – the pollution level is color coded green, orange and red, with red indicating areas with the highest level of pollution.

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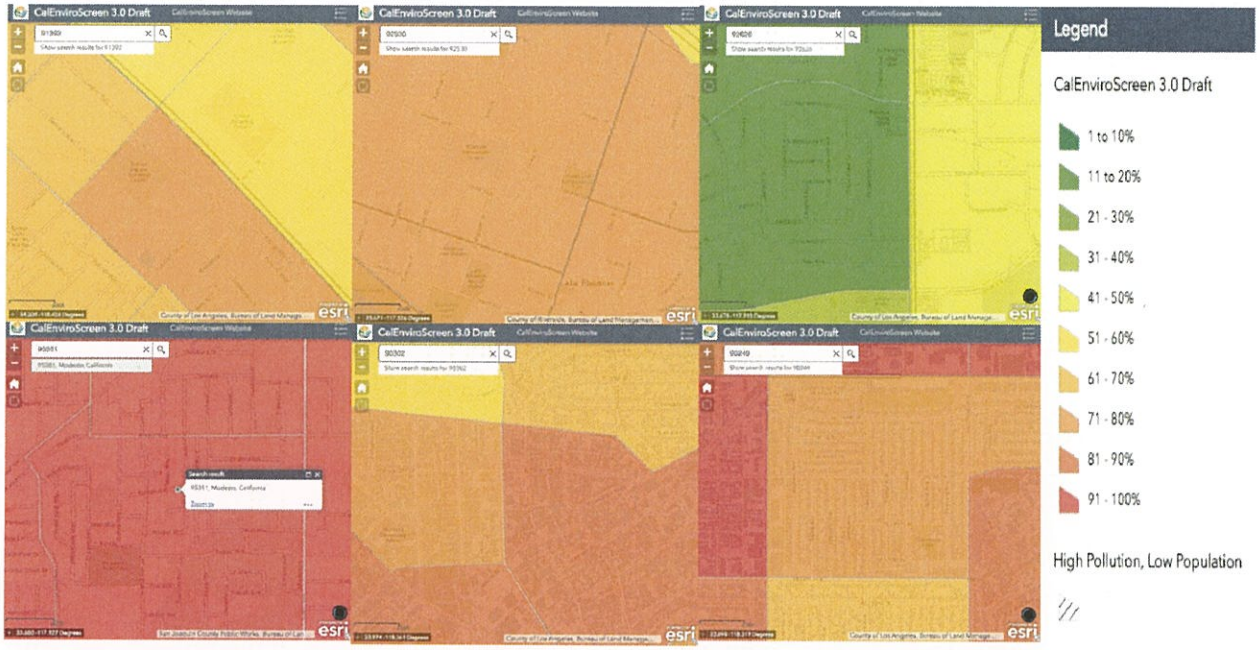
[24] *https://www.arb.ca.gov/cc/ejac/calenviroscreen-2013.pdf*

[25] *The Office of Environmental Health Hazard Assessment ("**OEHHA**") gathered information on California air pollution*

***Figure 3**: Foam Manufacturing facilities in Los Angeles Area*[26]



Therefore, there is an opportunity here to use the Methodology to ***significantly drive the level of pollution down using a direct and localized action on areas disproportionately affected by poor air quality***. This approach is consistent with EJAC's recommendations to target local emission reductions at manufacturing levels to ensure a better balance between "reducing emissions at low cost while maximizing benefits for all Californians"[27].

Conclusion

For all these reasons, an offset mechanism for foam BAs through methodology developed by Foam Supplies and adopted by the ACR should be considered by ARB as a ***solution for dramatically reducing the emissions of HFC***. The Methodology presents the advantage to ***target emissions in disadvantaged areas*** with ***localized action*** resulting in ***immediate benefits*** kept ***within the community*** where the manufactory operates. Therefore, the adoption of an offset mechanism for foam BAs will have a ***direct and localized positive outcome*** on areas disproportionately affected by poor air quality. This outcome will definitely serve the purpose of emission reductions legislations as well as California's model for climate justice.

[26] *http://oehha.ca.gov/calenviroscreen/general-info/calenviroscreen-30-draft-indicator-and-results-maps*

[27] *EJAC's recommendation at p.1. "Emphasize regulations that force the advancement of clean technologies. Ensure that near-term technologies do not adversely impact communities and long-term investments moves towards zero emissions". "ARB must better balance reducing GHG and reducing costs (cost compliance) with the other AB 32 goals of improving air quality in EJ communities while maximizing benefits for all Californians".*